

REMARKS

Claims 1-8 and 12-13 are pending herein.

I. The obviousness rejections based on Zimmerman (US 6,481,648) in view of Takahashi (US 6,412,925).

The USPTO respectfully rejects claims 1-7, 12 and 13 under 35 U.S.C. §103(a) as being obvious over Zimmerman in view of Takahashi. Of these, claim 1 is an independent claim.

A. The cited references do not teach or suggest a liquid jetting head comprising a nozzle to jet the droplet from an edge portion, an inside diameter of the edge portion of the nozzle being not more than 8 μm , as claimed in claim 1.

Regarding the limitations of claim 1 that claim in relevant part:

“A liquid jetting head comprising a nozzle to jet the droplet from an edge portion, **an inside diameter of the edge portion of the nozzle being not more than 8 μm** , and at least the edge portion of the nozzle being formed with insulating material;” (**emphasis added**)

it is respectfully not seen where the cited references teach or suggest the claimed structure quoted above.

Specifically, as the USPTO respectfully notes on page 2 of the Office Action, “Zimmerman does not specifically disclose that an inside diameter of the edge portion being 8 micrometers [or] 4 micrometers.” The USPTO respectfully attempts to overcome this deficiency in Zimmerman by citing Takahashi at column 2, lines 44-49, which states:

“Recently, demands for higher printing resolutions have increased in order to improve print quality. To respond to such demands, it is preferable to reduce the ink droplet volume. The ink droplet volume is usually reduced by reducing the nozzle diameter or by reducing the drive voltage.”

The USPTO relies on this **overly broad generalization** to teach or suggest the **specifically claimed limitation** of an inside diameter of a nozzle being not more than 8 μm .

However, applicants respectfully note that **Takahashi never appears to teach or suggest the specific inside diameter of not more than 8 μm** , as claimed in claim 1. In fact,

the only nozzle diameter that Takahashi does appear to suggest is found at column 6, lines 37-38, which state: “[e]ach of the nozzles 618 is tapered and 25 μm in diameter on the ink ejecting side.” **This nozzle diameter of 25 μm is clearly well outside the specifically claimed nozzle diameter range of not more than 8 μm .**

At most, the USPTO’s citation of Takahashi respectfully constitutes an **impermissible “obvious to try” rationale.** MPEP 2145 X.B cites a number of cases establishing that it is “improper” to rely on an “obvious to try” rationale in an obviousness analysis. At best, Takahashi only teaches in very broad, general terms that a person could improve resolution by reducing nozzle diameter. Thus, the mere fact that Takahashi teaches that reducing nozzle diameter improves resolution is respectfully insufficient to teach the specifically claimed limitation of a nozzle diameter of not more than 8 μm .

As the Examiner is respectfully aware, MPEP 706.02(j) discusses the statutory and case law requirements for an obviousness rejection:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second, there must be a reasonable expectation of success.** **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” **(emphasis added)**

Nowhere does Takahashi specifically teach or suggest a nozzle that actually has a diameter of 8 μm , as claimed in claim 1, nor does Takahashi teach or suggest a reasonable expectation of success to make a nozzle that small. Thus, it is respectfully asserted that a *prima facie* case for obvious has not been established. Therefore, it is respectfully asserted that claim 1 is not obvious over the cited references.

B. The dependent claims.

As noted above, it is respectfully asserted that independent claim 1 is allowable, and therefore it is further respectfully asserted that dependent claims 2-3, 6, and 8-10 are also allowable.

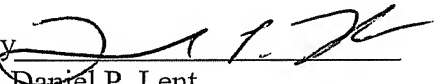
II. Conclusion.

Reconsideration and allowance of all of the claims is respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Please contact the undersigned for any reason. Applicants seek to cooperate with the Examiner including via telephone if convenient for the Examiner.

Respectfully submitted,

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